

## TWO NEW APHID GENERA AND SOME NEW SPECIES.

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In Canadian Entomologist, vol. XL, 1908, p. 67; and in Entomological News, vol. XX, 1909, p. 119. the writer described and figured a peculiar aphid from *Carex* under the specific name of *ballii* and placed it in the genus *Brachycolus*, with a remark to the effect that it did not seem to belong to any known genus.

The appearance of Mr. A. C. Baker's paper, "Synopsis of the Genus *Saltusaphis*," in the January (1917) number of the Canadian Entomologist, leads me to publish the characterization of a new genus—*Thripsaphis*—with *ballii* Gill. as the type, as this aphid seems to me generically distinct from *Saltusaphis* Theobald. In giving his characterization of this genus, Theobald says:

\*"Head very large. . . . Cornicles small, cup-shaped. . . .  
†Cauda in both forms bifid. . . . Body hairs fan-shaped or sickle-shaped," and attention is specially called to the single cross-vein in the hind wing and the jumping habit of the type species, *scirpus*. None of these characters apply to *ballii* except the venation of the hind wing, and that does not hold for other very closely allied species.

***Thripsaphis*, n. gen.**

General form very long and slender; eyes without ocular tubercles; antennæ 6-jointed; anterior wings normal in venation, but the first cross-vein in the hind wing weak, or absent in some cases, and easily overlooked when present, if mounted in balsam; cornicles represented by pores only; cauda strongly knobbed; precaudal tergite entire; anal plate strongly bi-lobed; gonapophyses 2; body hairs few and not blunt ended or in form of flabellæ; vertex prominent, and the oviparous females, so far as known, have wax glands on the lateral ventral surfaces of the abdomen, just caudad of the cornicle pores, from which are secreted wax

\*African Aphididae—Part II, in Bulletin of Entomological Research, Vol. VI, pt. II, p. 138, 1915.

†I have examples of *Saltusaphis scirpus* from Theobald. It is evident that he mistook the extended and strongly bi-lobed precaudal tergite for a bi-lobed cauda. The cauda has a large and typical knob with a narrowly constricted neck which was mistaken by Theobald for the anal plate. The anal plate is bi-lobed also, as in the Colorado species, *flabellus* Gill.  
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threads that are used by them with which to cover their eggs. Males, so far as known, apterous and very small.

When the alate form of *ballii* was described, the writer had but a single example in balsam, which did not show the first cross-vein of the hind wing and it was so described and figured, and is probably one of the reasons why Mr. Baker includes this species in *Saltusaphis*. Many alate examples of closely allied species have since been taken which plainly show the first cross-vein, even after being put in balsam, so I do not think the presence or absence of this vein should be given generic importance in the group to which *ballii* belongs.

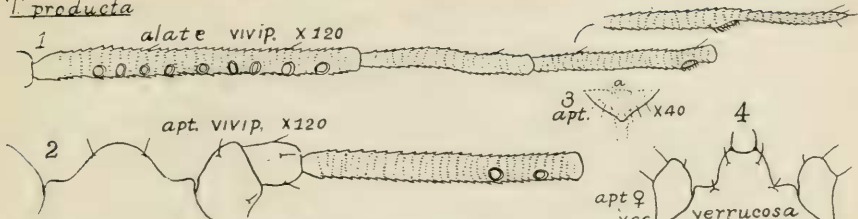
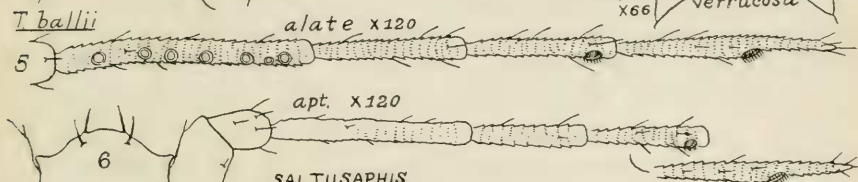
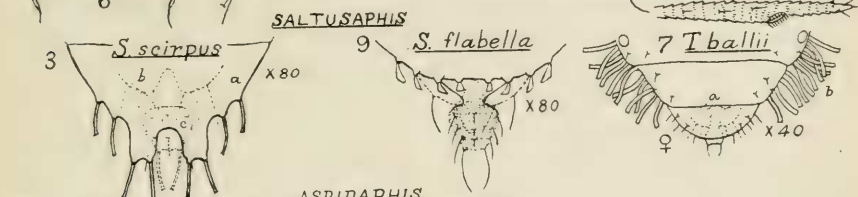
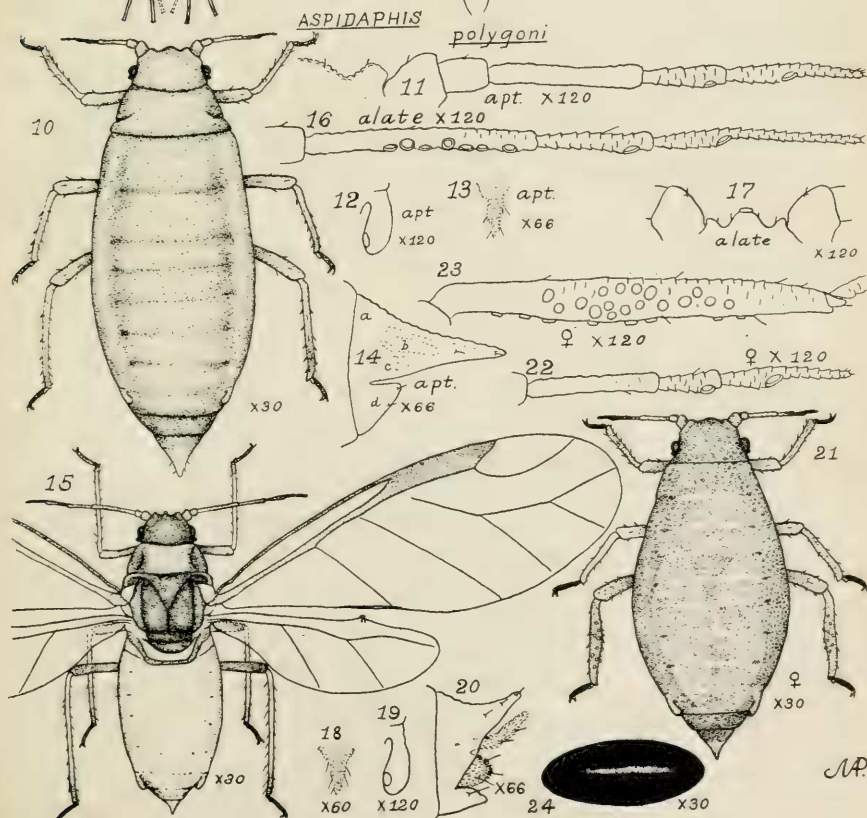
While *Callipterus flabellus* Sanb. does not have the bifid pre-caudal tergite that is so strong a character in the type of the genus *Saltusaphis*, I believe Mr. Baker is right in placing it with that genus, for it qualifies in all other important respects and does have a large eighth tergite bearing tuberculate hairs as in *scirpus* Theobald.

### ***Thripsaphis ballii* Gill.**

This species is separated rather easily separated from, at least, three other Colorado forms that are congeneric with it, by the short antenna, which, in the alate form, has about 7 small circular sensoria on the third joint, and in the apterous form none, the absence of the first transverse vein in the hind wing of the alate louse, the moderately produced vertex, the short and broadly rounded eighth tergite and the stout femora of the apterous viviparous form. See Plate XI, figures 5, 6, 7.

### ***Thripsaphis verrucosa*, n. sp.**

In the original description of *ballii* the writer mistook for it the egg-layer of what now proves to be a distinct but closely allied form. See Canadian Entomologist, vol. XL, p. 67 (apterous viviparous female), and plate III, figures 12 and 14. This form must be segregated from *ballii*, and for it I suggest the specific name *verrucosa*, because of the prominent projection on the vertex. See also Plate XI, figure 4, accompanying this paper. The other forms for the year have not been thoroughly worked out, so are held for later descriptions.

THRIPSAPHIST. productaT. balliiSALTUSAPHISASPIDAPHIS

**Thripsaphis producta**, n. sp.

Our collections indicate this as the most abundant species in Colorado occurring upon *Carex*. With the generic characters given above, only a brief characterization of this species seems necessary.

*Alate Viviparous Female*.—General colour blackish, legs and antennæ black; length 2.00; wing 2.50 x .70; hind tibia, .60; antenna, 1.15; segments of antenna in following proportions: III, 15; IV, 9; V, 8; VI, 7; spur, 4; sensoria on joint III, 9 to 11, rather large and slightly transverse; venation of fore wing normal and veins rather heavy; hind wing with first cross-vein weak or lacking, usually quite plainly seen before clearing in balsam. See figures 1, 2, 3.

*Apterous Viviparous Female*.—Colour (in balsam) dark yellowish brown, darkest on lateral margins and back of cornicles; legs black; antennæ black to near base; vertex convex, being rather strongly produced at the middle; length of body 2.10; width .70; antenna .95; third segment with 2-3 small circular sensoria near distal end; segments III, .30; IV, .18; V, .15; VI, 13; spur .08; hind tibia .48; beak very short, but little surpassing the first pair of coxæ; femora not specially thickened for jumping; hairs few, short, and simple; anal plate bi-lobed; 8th tergite produced and rather sharply rounded posteriorly. Figures 2, 3.

**Aspidaphis**, n. gen.

Wing venation normal; antennæ 5-jointed, less than one-half as long as the body; antenna and body very free from hairs, no lateral tubercles on prothorax or abdomen; cornicles weak, recumbent, shorter than hind tarsus, without flange, somewhat clavate, and with opening lateral, on the inner side, near the distal end; eighth tergite of abdomen developed into a very large triangular shield, which, in the type species, extends well beyond the end of the cauda. Eyes not tuberculate.

The three specially diagnostic characters are: Antenna, 5-jointed; cornicles without flange and with side opening, and the large precaudal shield. See figures 10 to 23.

**Aspidaphis polygoni**, n. sp.

This aphid, combining some rather unusual structures, was



first taken by Mr. L. C. Bragg upon knot-grass or door-weed, *Polygonum* sp., at Ft. Collins, Colo., in July, 1907, and we have had it under observation each year since and throughout the growing season.

Apparently, the different species of *Polygonum* are the sole food plants of this species. It imitates the colour of the under-side of the leaves and the stems of the plants upon which it feeds so perfectly that it is seen with some difficulty, and it is sporadic in its habits. The lice also have the habit of working beneath the bracts at the bases of the leaves where they are out of sight. The different stages may be described as follows:

*Apterous Viviparous Female*.—Colour green, with tips of the antennæ, the tarsi, distal ends of tibiæ, and extreme tip of cornicles, dusky to blackish; form of body long and tapering posteriorly to the point of the pre-caudal shield; body, legs and antennæ very free from hairs; antennæ upon slight tubercles, 5-jointed; joints 4 and 5 and spur sub-equal; joint 3 as long as 4 and 5 together, total length about .40; legs short and stout; cornicles a little more than one-half as long as the hind tarsi, placed at extreme lateral margins of abdomen, weak, recumbent upon the abdomen, clavate, rounded and without flange at the distal end, the opening being on the inner side near the end; cauda long, slender and entirely hidden from above by a triangular shield-like projection of the pre-caudal tergite which extends beyond the end of the cauda; lateral margins of prothorax and abdomen without spines. See plate XI, figures 10 to 14.

*Winged Viviparous Female*.—General colour, pale yellowish or greenish yellow, eyes blackish, head, mesothorax above and below, metathorax above, antennæ and tarsi dusky brown; wing veins heavy and dusky brown to blackish; length 1.40; antenna .40 to .50; wing 1.80; head rather broad and flat, the antenna being widely separated and not upon distinct tubercles, 5-jointed; medium ocellus prominent on the vertex; joints of the antenna: III, .18; IV, .08, V, .07; spur, .08. Joint 3 has about 6 to 8 sensoria; joint IV, 1 near the distal end; joint VI, 1 large and 4 or 5 small ones; antennal segments free from hairs; prothorax rather large and without lateral tubercles; cornicles, concolorous with the abdomen, situated on extreme margins, weak and lying against

the side of the abdomen and about one-half as long as the hind tarsus; terminal segment of the abdomen, above, in the form of a long, triangular plate with an acute upturned apex, beneath which is the cauda, which is rather narrow and directed downward; beak not attaining the second pair of coxæ. See figures 15 to 20.

*Oviparous. Female.*—The oviparous female differs from the viviparous form in being more robust, a little shorter and brownish or slightly rusty in colour. The antennal joints and other characters are substantially as in the viviparous form. The hind tibiæ are moderately swollen and have 20 or more circular sensoria on their middle one-half. Figures 21–23.

The eggs are bright green in colour when deposited upon the stems of the host plant, but soon turn shining black on exposure. See figure 24.

While we have never found this louse abundant, we have seldom had trouble to find examples when looked for at any time during the growing season.

#### EXPLANATION OF PLATE XI.

*Thripsaphis producta.* 1, antenna of alate viviparous female; 2, vertex and first three joints of antenna of same; 3, eighth tergite of abdomen with cauda and anal plate beneath showing gonapophyses (a).

*T. verrucosa.* 4, vertex showing tubercle.

*T. ballii.* 5, antenna of alate female; 6, vertex and antenna of apterous female; 7, terminal segments of oviparous female showing gonapophyses (a), and wax threads (b).

*Saltusaphis scirpus.* 8, showing terminal segments of abdomen of apterous female—(a) large bi-lobed 8th tergite, (b) bi-lobed anal plate, (c) knobbed cauda.

*S. flabella.* 9, eighth tergite, bi-lobed anal plate (dotted), and cauda of apterous viviparous female.

*Aspidaphis polygoni.* 10, apterous viviparous female (stem mother?); 11, vertex and antenna of same; 12, cornicle of same; 13, cauda of same; 14, lateral view of 8th and 9th segments, (a) 8th tergite, (b) cauda, (c) anal plate, (d) genital plate of No. 10; 15, alate viviparous female; 16, antenna of same; 17, vertex of

same; 18, cauda of same; 19, cornicle of same; 20, lateral view of 8th and 9th segments of same; 21, oviparous female; 22, antenna; 23, hind tibia and, 24, egg of No. 21. The enlargement is indicated with each figure. Original, Miriam A. Palmer, Illustrator.

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## NEW NEARCTIC CRANE-FLIES (TIPULIDÆ, DIPTERA) PART III.

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This paper is a continuation of the preceding articles under the same title (Can. Ent., vol. 48, p. 42-53, 1916; vol. 49, p. 22-31, 1917). The species here considered include a small number of subapterous forms, these belonging to the genera *Chionea*, *Limnophila*, and *Tricyphona*.

I am indebted to Mr. W. L. McAtee, Mr. R. C. Shannon, Mr. C. W. Johnson and other gentlemen mentioned in the paper. I am especially indebted to Mr. L. O. Jackson for specimens herein described. Unless stated otherwise, the types are in the collection of the author.

Subfamily *Limnobiinæ*.

Tribe *Limnobiini*.

Genus *Limnobia* Meigen.

### ***Limnobia indigena jacksoni*, subsp. n.**

*Male*.—Length 7.4 mm.; wing 8.8 mm.

*Female*.—Length 7.1 mm.; wing 7.6-8 mm.

Similar to typical *indigena* O. S. (Northeastern America), differing as follows:

The medial præscutal stripes are continuous and well-defined behind, the interspaces obscure, not bright yellow; pleura largely dark brown, this including also the outer faces of the coxæ. Wings similar, the ground-colour more grayish, the brown clouds less distinct and more extensive, pale grayish brown; these markings include a broad, continuous seam along and slightly before the cord and the apex of the wing; basal deflection of vein *Cu*<sub>1</sub> close to the fork of *M*. Abdominal tergites with the cross-bands poorly defined, the sternites suffused with brownish.

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